

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: ZHANG, Caiteng

SERIAL NO.: 10/590637

ART UNIT: 1796

FILED: 23 August 2006

EXAMINER: Heincer, L. J.

TITLE: A SOLUTION OF METAL-POLYMER CHELATE(S) AND APPLICATIONS THEREOF

Amendment B: CLAIM AMENDMENTS

1. (Currently amended) A solution of metal-polymer chelates(s) for static bio-carrier, containing at least one metal-polymer chelates for static bio-carrier, the solution for static bio-carrier comprising by weight the following composition percentage:

a. Main skeleton of the bio-carrier:

~~9950.87~~~ 0.00001 percent water;

~~0.00001 to 40 percent carboxyl group bearing molecules, including at least one carboxylic acid;~~

~~0.00001~ 19.89999 percent hydroxyl group bearing compounds-polymers, including at least one carbohydrate molecule;~~

~~0.00001 to 20 percent metal salts, including at least one metal ion;~~

b. Two functional groups which tend to the opposite sides of the skeleton:

0.01 ~ 40 percent carboxyl group bearing molecules, including at least one carboxylic acid;

~~0.00001 ~ 20.09998 percent amino group bearing molecules, including at least one ammonia; and~~

c. The structure of the well-mixing chelates is tend to chain-form which contains positive and minus polar functional groups beside it, the chelates can mix well with bio-protein:

at most 49.99996 a trace percent of biological proteins comprising biological molecules,

whereby fermentations are proceeded by the solution of metal-polymer chelates(s) solution

for static bio-carrier is capable of assisting in a fermentation to preserve

process, the form of the bio-carrier being selected from a gaseous state, powder, metal(s) of nanometer size, inorganic, organic/inorganic, fluid, semi-fluid, conductor(s), semiconductor(s), thin-film(s), fiber(s), chip(s), cells and bio-tissue(s).

2. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, further comprising ;

~~a soluble hydroxyl polymer, and  
amino group bearing molecules, including at least one protein amino acid.~~

3. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, further comprising ;

~~soluble carbohydrate low molecular weight molecules , including at least one monosaccharide bimolecules  
of monosaccharide derivatives.~~

4. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, further comprising;

~~including at least one alkali alkaline soluble fatty acid and soluble carbohydrate molecules.~~

5. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the metal salts are selected from a group consisting of beryllium, magnesium, calcium, strontium, barium, radium, nickel, chromium, lead, copper, iron, zinc, titanium, manganese, cobalt, silver, gold, platinum, palladium, cadmium, lithium, ~~sodium, potassium,~~ rubidium, cesium, mercury, tin, zirconium, aluminum, thallium, antimony, bismuth, germanium, gallium, molybdenum, tungsten, yttrium, scandium, rhodium, iridium, technetium, osmium, ruthenium, rhenium, vanadium, and indium.

6. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the carboxyl group bearing molecules are selected from a group consisting of monocarboxylic acid, dicarboxylic acid, tricarboxylic acid, acetic acid, L-ascorbate, 2-Hydroxybenzoic acid, methanoic acid, propionic acid, propanedioic acid, 2-hydroxypropanoic acid, hydroxybutanedioic acid, butanedioic acid, hexanedioic acid, cis-butendioic acid, trans-butendioic acid, ethanedioic acid, dodecanoic acid, 2,3-dihydrobutanedioic acid, humic acid, nitrified humic acid, fatty acid, opines in a plant, carboxyl acid fiber, and carboxyl resin.

7. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the hydroxyl group bearing ~~compounds-polymers~~ are selected from a group consisting of sucrose, maltose, lactose, trehalose, disaccharide molecules, monosaccharide molecules, chitosan, degraded oils, seaweed cell wall (without adding a metal salt), unhusked rice (without adding a metal salt), cytokinin-O-glucosides, amino group containing polyvinyl alcohol, polyvinyl alcohol, humic acid, nitrified humic acid, peat, hydroxypropylmethyl cellulose, and mixture of oil and sugar. .

8. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelate(s) after liquid-solid separation processing ~~produces~~ obtains the metal-polymer chelate, the metal-polymer chelates being selected from a group consisting of polymer bridging agent, inorganic polymer carrier, inorganic and organic bridge-~~inorganic~~ polymer, nano inorganic polymer, plant fiber, carboxyl acid fiber, modification having carboxyl acid fiber, carboxyl resin, amino resin, inorganic matter, polylysine, and aminosilane.

9. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a moisture absorbent combined with the metal-polymer chelates.

10. (Currently amended) The solution of metal-polymer chelates(s) of claim 8 for static bio-carrier, wherein the polymer bridging agent is comprised of ~~carboxyl-group bearing linear polymers-molecules and amino group bearing liner molecules~~.

11. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the biological proteins bearing biological molecules are selected from a group consisting of a protein enzyme, a bacterium, and a cell.

12. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a silicic acid bearing molecule.

13. (Currently amended) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a clay for use in a nanoindustrial application.

14. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a ~~carboxyl group bearing plastic polymer and an amino group bearing plastic polymer~~ for use in a nano plastic industry application.

15. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is being used for in an oxidation process of to produceing oxygen anions, including at least one solvent degradations.

16. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is being used for a condensation, including at least one oxidizing condensation.

17. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is being used in one of hydroxypropylmethyl cellulose mimic of-imitated chitosan, and monosaccharide mimic of-imitated-glucosamine.

18. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, for fermentation in which the solution is being used in the cultivation and purification of the biological protein bearing biological molecules and their metabolites a biochemical reaction for fermentation.

19. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, for fermentation in which the solution is being used in a metal enzyme biocatalyst.

20. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier excluding chitosans, in which the solution is being used in a disinfectant.

21. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, for fermentation in which the solution is being used in a biological protein bearing biological molecules culture

medium preservation system.

22. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier, for fermentation excluding chitosans, in which the solution is being used for dietary treatments free from chitosan and for health care applications.

23. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier fermentation, in which the solution is being used for the production of chemical components-matters of a plant.

24. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier fermentation, in which the solution is being used for duplication of genes and carriers.

25. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier excluding chitosans, in which the solution is being used in a nano filtration system.

26. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier fermentation, in which the solution is being used for the production of a ~~fermentation~~ nano material.

27. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier fermentation, in which the solution is being used for one of the nano inorganic matter and nano ceramic and nano plastic and nano textile industries.

28. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier fermentation, in which the solution is being used in one of the manufacture of biological liquid crystals and biological semiconductors and biochips.

29. (Currently amended) A method of using ~~T~~the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier fermentation, in which the solution is being used for biological batteries.

30. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is being used for processing an oil product, including at least one solvent liquid.

Claims 31-40 (canceled).

41. (Currently amended) A method of using ~~The solution of~~ metal-polymer chelates(s) solution of claim 8 for static bio-carrier, wherein the metal-polymer chelates after purification processing produces-obtains at least one substance, the substance being selected from the group consisting of amino metal compound, an amino metal polymer, an amino nano metal polymer, an amino nano metal compound, a nano metal polymer, a nano metal compound, an amino biological protein bearing biological molecules, and a pure biological protein bearing biological molecules.